REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 6, 7 and 9 remain under consideration. Claims 3 and 8 have been withdrawn from consideration. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

Telephone Interview

Applicants note with appreciation the telephone interview conducted with Examiner Leo on December 22, 2003. At that interview, the present amendment was discussed. The Examiner suggested the word "symmetric" be removed from the specification which has now been accomplished.

Entry of the Amendment

At this time, it is requested that the present amendment should be entered into the official file in view of the fact that the amendments to the claims automatically place the application in condition for allowance. Alternatively, if the Examiner does not agree that the application is in condition for allowance, it is respectfully requested that the present amendment should be entered for the purposes of appeal. The changes to the specification is in answer to the Examiner's rejection and makes the application more clear. The changes to the claims help to better define the

invention and thus overcome the art rejection. Accordingly, entry of the amendment is respectfully requested.

Rejection under 35 U.S.C. § 112, First Paragraph

Claims 6, 7 and 9 stand rejected under 35 U.S.C. § 112, first paragraph as containing subject matter not described in the specification. This rejection is respectfully traversed.

During the telephone interview, the Examiner indicated that it would be preferable to remove the word "symmetric" from the specification in order to avoid any inconsistency. By way of the present amendment, applicants have removed this term. In addition, the V-shaped patterns are now described as being serially repeating in the circumferential direction, which is clearly seen in the figures. This now gives support to the limitations in the claims. Accordingly, this rejection is now considered to be overcome.

Rejection under 35 U.S.C. § 103

Claims 6, 7 and 9 stand rejected under 35 U.S.C. § 103 as being obvious of Yamamoto et al. (JP 11-000713) in view of Schuez et al. (U.S. Patent No. 5,775,411). This rejection is respectfully traversed.

The Examiner states that Yamamoto et al. has all the claim limitations except secondary grooves. The Examiner relies on Schuez et al. to show the use of secondary grooves on projection portions to improve heat exchange. The Examiner feels that it would have

been obvious to employ secondary grooves in the exchange device in Yamamoto et al.

The Examiner has copied the middle drawing of Fig. 2 from Yamamoto et al. and marked the various rows and V-shaped regions therein. However, it is noted that the lines marked by the Examiner do not actually touch and therefore do not form a V-shape. Instead, there appears to be a section labeled 36 between these lines to prevent their intersection. However, it is noted that such v-shape sections are formed in the third drawing in Fig. 2. The Examiner has also stated that the width of the two rows of parallel grooves is different. It appears from this drawing that the two center rows are equal and the two outer rows are slightly larger than the two inside rows. However, it does not appear that the rows alternate in width.

Claim 6 describes of method of manufacturing a heat transfer pipe provided with internal grooves having a combination of steps, including marking a plurality of rows of grooves including a first row of parallel grooves alternating with a second row of parallel grooves where the parallel grooves in the first row and the parallel grooves in the second row form regions of v-shaped patterns and the regions being serially repeated along the line perpendicular to the axis direction, where the first row and second row are different in width, marking secondary grooves in the

projected portions of the v-shape patterns, the secondary grooves being fine grooves compared to the radial direction of the projected portions, and forming the flat plate-like heat transfer pipe material into a cylindrical pipe. Applicants submit that neither of the references nor their combination teach this combination of steps as presently claimed in claim 6.

As pointed out above, the Yamamoto et al. reference does not teach rows of different widths which alternate with each other. Instead, the two center rows are the same width and the two outer rows are the same width. In the present invention, the rows alternate. Also, as is pointed out above, v-shaped patterns are not formed because the grooves of the adjoining rows do not meet but are separated by section 36. Also, as is admitted by the Examiner, the Yamamoto et al. reference does not include secondary grooves on the projected portions.

Schuez et al. does show the formation of depressions on the sides of the projected portions. However, these depressions are not grooves, but have various shapes. Furthermore, these depressions are not fine grooves. Applicants have now specified that the grooves are fine compared to the radial direction of the projected portions. In Schuez et al. the various depressions are spaced at 0.6 mm (column 5, line 12) and the radial direction of the projected portions, H, is given as 0.5 to 1.7 mm. The groove pitch

is of the same order of magnitude as the height of the projected portions, so that the grooves cannot be considered fine. For these reasons, Applicants submit that claim 6 would not be obvious over the combination of Yamamoto and Schuez et al.

Claim 7 is a device claim corresponding to claim 6. The claim describes a device for manufacturing a heat transfer pipe with internal grooves having a combination of elements including a first marking roll for marking a first row of parallel grooves alternating with a second row of parallel grooves, the parallel grooves in the two rows forming regions of v-shaped patterns, the regions being serially repeated, the first and second rows being different in width, a second marking roll for marking secondary grooves, which are fine grooves compared to the radial direction of the projected portions, and a roll forming device, wherein the first marking roll, the second marking roll and the roll forming device are provided successively in the direction of movement of the pipe material. This claim is allowable for the same reasons recited above and in regard to claim 6.

The Yamamoto et al. reference does not show the two rows of grooves alternating with each other and having different widths. The references also do not show the secondary grooves being fine grooves compared to the radial direction of the projected portions.

Accordingly, claim 7 is allowable for similar reasons recited above in regard to claim 6.

Claim 9 describes a heat transfer pipe provided with internal grooves having a combination of elements, including a pipe body, a plurality of rows of grooves including a first row of parallel grooves alternating with a second row of parallel grooves, the grooves forming regions of v-shaped patterns and the regions being serially repeated. The first row and the second row are different in width, and secondary grooves are formed on projected portions of the v-shaped patterns, the secondary grooves being fine grooves. This claim is likewise allowable since the references do not show the two rows of grooves alternating with each other and being serially repeated and different in width. The references also do not show secondary grooves being fine grooves, as described above in regard to claims 6 and 7. Accordingly, Applicants submit that claim 9 is likewise allowable.

In the response to arguments on page 3 of the Office Action, the Examiner states that "the burden is upon Applicants to show the prior art does not disclose with the Examiner believes Yamamoto et al. discloses". Applicants submit that this is an improper reading of the law. 35 U.S.C. § 102 makes it clear that Applicants are entitled to a patent unless the Examiner has references which anticipate the claims. Thus, the burden is upon the Examiner to

show clearly that the reference anticipates or renders obvious the claim. Accordingly, the burden is on the Examiner, not Applicant.

No Prosecution History Estoppel

Claims 6, 7 and 9 are hereby presented in independent form. No prosecution history estoppel applies to the interpretation of limitations set forth in claims 6, 7 and 9 in view of the fact that the subject matter has been continuously presented since the original filing date of the present application.

Conclusion

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone, or in combination. In view of this, reconsideration of the rejections and allowance of all the claims are respectfully requested.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert F. Gnuse (Reg. No. 27,295) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Applicants respectfully petition for a one month extension of time to January 22, 2004, within which to respond to the Office Action of September 22, 2003. The prescribed fee in the amount of $110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment

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